

The objection to the drawings is respectfully traversed in view of the formal drawings submitted herewith.

The rejection of claims 1-12, 23 and 24 under 35 U.S.C. § 112 (first paragraph) for lack of written description is respectfully traversed in view of the above amendments.

The rejection of claims 1-12, 23 and 24 under 35 U.S.C. § 112 (first paragraph) for lack of enablement is respectfully traversed in view of the above amendments.

The rejection of claim 23 under 35 U.S.C. § 112 (first paragraph) for lack of enablement is respectfully traversed in view of the above amendments.

The present application, as filed, indicates to one of ordinary skill in the art sufficient guidance and direction to make and use an isolated polynucleotide encoding a plasmodium falciparum where the polypeptide has at least 90% amino acid identity with SEQ ID NO:3. In particular, on page 17, line 1 to page 20, line 3 of the present specification, methods of determining amino acid identity and sequence homology are defined. One of ordinary skill in the art, using the information contained in the present specification, as filed, could without undue experimentation determine whether two amino acid sequences, when optimally aligned, have amino acid identity of a particular percentage (See specification, pg. 19, lines 1-14). Further, one of ordinary skill in the art could, without undue experimentation make such polypeptides. It is well within the ordinary skill in the art to make conservative substitutions while retaining the functional properties of the polypeptide. It was well within the level of skill in the art to replace one amino acid with a substitute amino acid having similar chemical properties such as charge or polarity to retain the properties of the protein. Further, it was well within the level of skill in the art to

test the proteins for the properties of the signal peptide without undue experimentation.

For example, multiple amino acid substitutions can be made and tested using known methods of mutagenesis and screening. These methods, known prior to the filing date of the present application, relate to procedures for simultaneously randomizing two or more positions in a peptide, selecting for functional peptides and then sequencing the mutagenized polypeptides to determine the spectrum of allowable substitutions at each position. Other known methods for determining amino acid substitutions include phage display or region-directed mutagenesis. These mutagenesis methods can be combined with high-throughput screening methods to detect the activity of cloned, mutagenized proteins in host cells. Mutagenized DNA molecules that encode active proteins can be recovered from the host cells and rapidly sequenced using modern equipment. These methods allow the rapid determination of the importance of individual amino acid residues in a peptide of interest. Thus, one of ordinary skill in the art would not have to unduly experiment to produce the claimed invention based on the information provided in the present application.

The rejection of claims 1-12, 23 and 24 under 35 U.S.C. § 112 (second paragraph) for indefiniteness is respectfully traversed in view of the above amendments.

With particular respect to claim 8, applicant believes that the language is definite. The phrase "at least a portion of" has a plain and ordinary meaning. As recited in claim 8, an oligonucleotide is complementary to at least a portion of the mRNA of claim 7. The oligonucleotide could be complementary to any portion of the mRNA of claim 7, or to the entire portion of the mRNA of claim 7.

The rejection of claims 1-2 and 24 under 35 U.S.C. § 102(b) as anticipated by Sim et al., Molecular and Biochemical Parasitology 34:127-134(1989) ("Sim") is respectfully traversed.

Sim does not disclose an isolated nucleic acid molecule encoding a Plasmodium falciparum chitinase. As defined in the present specification on page 14, lines 26-30, isolated refers to nucleic acid which has been separated from an organism in a substantially purified form (i.e. substantially free of other substances originating from that organism) and to synthetic nucleic acid. Sim does not disclose an "isolated" nucleic acid.

The rejection of claims 1-3, 6-12 and 24 under 35 U.S.C. § 102(b) as anticipated by Vinetz et al. PNAS 96:14061-14066 (1999) ("Vinetz") is respectfully traversed. Vinetz was published in the November 23, 1999, edition of PNAS. The present application was filed on May 26, 2000, claiming priority to U.S. Provisional Patent Application Serial Nos. 60/136,508 and 60/180,051, filed May 28, 1999 and February 3, 2000, respectively. As indicated on page 2 of the outstanding office action, the present application has a priority date of May 28, 1999. Accordingly, Vinetz is not available as prior art against the claims of the present application. Therefore, the rejection is improper and should be withdrawn.

Pursuant to 37 CFR §§ 1.97-1.98, applicants submit herewith to the U.S. Patent and Trademark Office copies of the references listed on the attached PTO-1449 form.

In view of the foregoing, applicants submit that this case is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

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Date

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11/18/02 Date	<u>Karla M. Weyand</u> Karla M. Weyand

**Appendix (Marked up version of claims)**

1. (Amended) An isolated nucleic acid molecule encoding a Plasmodium [sp.] falciparum chitinase.

4. (Amended) The isolated nucleic acid molecule of claim 1 wherein said nucleic acid molecule has a nucleotide sequence as shown in SEQ ID NO:1 [or SEQ ID NO:2].

5. (Amended) The isolated nucleic acid molecule of claim 1 wherein said nucleic acid molecule encodes an amino acid sequence as shown in SEQ ID NO:3 [or SEQ ID NO:4].

23. (Amended) An isolated nucleic acid molecule encoding a Plasmodium [sp.] falciparum chitinase, said nucleic acid molecule encoding a first amino acid sequence having at least 90% amino acid identity to [a second amino acid sequence, said second amino acid sequence as shown in] SEQ ID NO:3 [or SEQ ID NO:4].

24. (Amended) A DNA oligomer [capable of hybridizing] which hybridizes to the nucleic acid molecule of claim 1.